ON THE

TOPOGRAPHY OF MEERUTT,

AND

THE PRINCIPAL DISEASES WHICH PREVAILED IN THE 1st BRIGADE OF HORSE ARTILLERY AT THAT PLACE.

By JOHN MURRAY, M. D.,

ASSISTANT SURGEON, 1ST BRIGADE HORSE ARTILLERY.

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ON THE

TOPOGRAPHY OF MEERUTT.

Its situation and population.

MEERUTT is one of the most ancient cities in India. It is situated in the centre of the Doab, nearly equi-distant from the Ganges and Jumna, and about 800 feet above the level of the sea. It is a large crowded city, containing about 30,000 inhabitants, surrounded by a pucka wall,* 15 feet in height. The cantonments are two miles north of the city. It is in Lat. 29° N. and Long. 77° 45′ S.

Appearance of the country.

The surrounding country is, like all the Doab, extremely level. The soil is light, alluvial, and very productive, in most places retaining its verdure during the hot season, and during the rains clothed with luxuriant vegetation, and in many places covered with water. The roads are sandy and heavy, but freely passable, except during this latter period. At all seasons boats pass on the Ganges, between Calcutta and Gurmucteesah, which is 30 miles from Meerutt.

* Built of burnt bricks and mortar.

Distance from the Ganges; right bank low & marshy—the Cauder abounds with tigers & game.

The river Ganges passes about 25 miles to the eastward. On the right bank, extending from Hurdwar to Gurmucteesah, (about 60 miles), varying in breadth, from half a mile to four miles, the land is low, marshy, and jungly, with high ground on the right. This tract is called the Cauder. It has been formed by various changes in the bed of the river. It abounds in tigers and game, and is a great source of attraction to the sporting gentlemen of the station, whose keenness often detains them till the hot season is far advanced, or even till the rains commence, and in consequence they frequently suffer from severe attacks of fever. Between the Cauder and Meerutt the soil is light, sandy, and alluvial, lying over a bed of kankur, from one to twenty feet in depth. It is perfectly level, with few trees and little jungle; there are a few trees in the gardens of the officers in the station, but they do not prevent the free circulation of air.

The soil.

Kallah Nuddee.

The Kallah Nuddee passes about three miles to the east; one small branch passing through the station. Its banks are low and marshy. In the cold, and hot seasons, it is a small stream, and during the rains it is lost in the general inundation.

Himalaya Mountains visible from the station.

The Himalaya Mountains are distinctly visible in clear mornings, particularly after rain. They are about 70 miles distant to the north-east. The Sanitarium of Landour is 120 miles distant. It is accessible at all seasons

of the year—the journey occupying 30 hours; dak travellers, who are detained at the Keree Pass, (the entrance to the valley of the Dhoon), —towards the end of the rainy season, are liable to attacks of severe remittent fever; though passing rapidly in the palkee does not often lead to any bad consequences; civilians and officers generally send thir families to Mussooree, during the hot and rainy seasons, and then the children assume the florid ruddy appearance of the most healthy climates of Europe. The convalescent station of Simlah is about 200 miles distant—50 hours dak to Bar, at the foot of the hills, and three easy marches, in the hills, to Simlah. It is accessible at all seasons, without danger. Their distance.

Meerutt is considered one of the most healthy stations in India. The average mortality during the last four years has been $2\frac{1}{3}$ per cent. amongst the Europeans, and $\frac{1}{3}$ per cent. amongst the natives. The climate passes through great changes in temperature and humidity; but these are generally gradual and regular. The weather for five months, viz. from October to April is delightfully cool, and invigorating. The prevailing winds are westerly, and northerly, with little rain. In January the ground in the mornings is frequently covered with hoar-frost. Woollen clothing and fires are found necessary to comfort. In November, and March, the direct rays of the sun are very powerful and ought to be avoided—this is the most healthy season of the year; the diseases are of an inflammatory Its healthiness. The climate.

nature, the fevers though intermitting yield to depletion, and antimonial purgatives, and do not generally require Quinine for their removal. Hepatic disease, with a strong tendency to abscess is common during this period.

Hot winds.

In April, the hot westerly wind commences; at first it begins in the afternoon, and ceases at sunset, afterwards in the morning, and continues during the greater part of the night. It crosses the arid sandy desert of Ajmere, which may account for its being a dry wind. It ceases in June. During this season there are occasionally typhoons—strong gales, from the north-west, coming on suddenly, carrying before them clouds of dust and leaves, accompanied by lightning and thunder, frequently terminating in rain, and leaving the air very cool and refreshing. During this season the lightest clothes are necessary for comfort. Most houses and the barracks and hospitals are kept cool by means of tatties, whilst the circulation of air is kept up in the rooms by punkahs during the day, and occasionally during the night also. These expedients do not agree with all people, even when well, and I have seen decided bad effects from them, in diseases induced by checked perspiration. By means of tatties and punkahs, and keeping in the house during the day, this season passes not unpleasantly, especially as, though hot and relaxing, it is not generally unhealthy. Many, who have suffered severely from rheumatism, remittent fever, and spleen, enjoy better health, than during any other period of the

North-westers frequent.

Use of Tatties and Punkahs.

Hot season not generally unhealthy.

year. Fruit is abundant--as strawberries, loquats, peaches, apples, grapes, mangoes, &c. These eaten in an unripe state, combined with imprudently sleeping behind tatties, or in the open air, are frequent causes of dysenteric complaints; inflammation, intermittent fevers, and acute hepatic attacks are also common from exposure to the sun. Convalescence is less rapid than during the cold season.

Towards the end of June the winds become variable, and the weather close and cloudy, with occasional showers in the intervals, between which it is extremely oppressive, hot and damp. The regular rainy season then sets in, and it rains with little intermission, and continues pretty cool, till the beginning of September; during this month it is cloudy with little wind, and occasionally extremely hot, and exhausting—this is the most unhealthy season of the year. Dysenteric attacks are frequent, and typhoid intermittent or remittent fevers very common, particularly amongst the grass-cutters, whose occupation exposes them to unhealthy alluvial exhalations. In October, though the days are very hot, the nights gradually become cool and pleasant—the changes of temperature are considerable, and they are much felt, by those whose constitutions have been debilitated by the previous hot, and rainy seasons: dysentery, and remittent fever, of a more asthenic type, than at the other seasons, are common; convalescence is slow during this season.

Commencement of the rainy season.

The most unhealthy season of the year.

Average Range of Thermometer for 1833-4-5.

Range of the thermometer during the year.

Month.	Sun Rise.		Noon.		3. P. M.		No of Rainy Days.
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	
January, ...	54	32	73	54	73	55	1
February, ...	60	38	81	57	84	61	3
March, ...	67	47	85	62	88	62	4
April,......................	76	58	97	72	97	73	2
May, ...	89	71	97	88	100	88	1
June,......................	90	74	101	77	102	78	6
July, ...	82	75	89	78	90	78	19
August,....................	81	74	91	76	92	77	14
September, ...	84	69	87	76	88	75	10
October, ...	73	55	84	70	85	71	3
November, ...	63	45	75	65	76	66	2
December,................	58	38	66	55	67	56	3

Climate favorable to diseases induced by a residence in the Lower Provinces.

The climate is found to be favorable to many of the diseases induced by residence in other, more damp, parts of India. Europeans do not often suffer from a first attack of remittent fever, though returns of this disease occur during the latter part of the rains. The general character of the diseases is asthenic, and except in hepatic cases, not leaving great organic derangement. Great advantage is derived in accelerating convalescence, and regaining strength by removal to the convalescent station at Landour. The violent exercise and high excitement in this branch of the service, viz. the Horse Artillery, in those who do not live more regularly, or carefully than other European soldiers, induce a tendency to acute inflammatory disease. This

combined with the severe falls and blows occasionally received, may account for the frequency of hepatic disease tending to the formation of abscess.

Frequency of hepatic disease amongst the Horse Artillery.

The Hospital (see plan No. 1,) is a low puckah, flat-roofed, building, surrounded by a compound wall 9 feet in height, situated 200 yards to the east of the barracks. It is surrounded by an enclosed verandah. It is hot, and wants an open verandah, in which the convalescents might walk, during the rains. It is freely ventilated, and the wards are kept as cool as possible, by tattees, during the hot weather: punkahs are used during the rains. There are four wards for Europeans, the first ([a]) is for the women and children—or for contagious diseases as small-pox. The second ([b]) is for the medical, and the third ([c]) for the surgical cases of the Horse Artillery, the fourth ([d]) is for the sick of the Company of Foot Artillery; they contain 12 or 14 beds each, allowing, when full, above a thousand cubic feet for each patient. The average strength of the European Artillery is 404, but I have never seen the wards full. The floors are puckah, the beds cane-bottomed, 6 feet by 3, standing 1½ feet from the floor. No curtains are used, the matrasses are stuffed with hemp, the sheets and dresses are made of cotton, the resai or coverlet is formed by sewing a piece of coloured cotton over a blanket, the whole is kept clean, and in good order. The Surgery ([e]) occupies the north-east, and a covered walk leads from the south to ([f]) the necessary.

Description of the hospital and its appurtenances.

Native Hospital.

The Native Hospital (No. 2) is of a similar structure; with one ward ([g]) capable of containing 14 beds. This is much too small, the average strength is 1498; the verandahs are generally occupied by the sick, and more beds are put in the interior than there ought to be. The Hospital Sergeant lives in the other room ([h]).

Dead House.

The Dead House (No. 3) is at the south-west corner of the compound; the store-room (No. 4) and cook-room (No. 5) in the centre, with houses for the native servants (No. 6) in the south-east corner. There is an excellent puckah well (No. 7) near the cook-room; there is a good choppered thatched house, (No 8) containing three rooms and an enclosed verandah, over which an open verandah extends to the north of the Hospital for the Subordinate Medical Staff. A temporary building (No. 9) was erected in May, for the cases of yellow fever amongst the natives. The situation is low, and the compound is much under water, during the rainy season, and at this period cases of remittent fever occasionally appear amongst the native patients and servants, and also in the families of the Subordinate Medical Staff; but on the whole the situation is healthy. A Lock Hospital is urgently required, the women in the bazar are carefully examined once a week, but as the sick are treated as out-patients they may, and frequently do, disseminate their diseases.

Temporary building erected for cases of yellow fever among the natives — situation low.

Lock Hospital urgently wanted.

Hospital Establishment.

A NUMERICAL ABSTRACT OF THE HOSPITAL ESTABLISHMENT ATTACHED TO THE HOSPITAL OF THE MEERUTT DIVISION OF ARTILLERY.

EUROPEAN HOSPITAL ESTABLISHMENT.																							NATIVE HOSPITAL ESTABLISHMENT.					
Medical Department.								Steward's Department.																				
Surgeon.	Assistant Surgeon.	Apothecary.	Assistant Apothecary.	Apprentice.	Head Compounder.	Head Dresser.	Shop Coolees.	Steward.	Native Writer.	Steward's Servants.	Head Bheestee.	Bheestees.	Head Sweeper.	Sweepers.	Head Ward Coolee.	Ward Coolees.	Head Cook.	Cooks.	Tailors.	Barber.	Head Washerman.	Washerman.	Native Doctors.	Shop Coolee and Dresser.	Bheestee.	Sweeper.	Bramin Cook.	Georgah.
1	1	1	1	1	1	2	3	1	1	2	1	4	1	5	1	10	1	3	2	1	1	3	4	1	1	1	1	1

Dhoolies.

When in cantonments, two dhoolies are attached to the Brigade, for conveying the sick or wounded, from the barracks or parade to the hospital. When marching, during peace, five doolees per cent. on the numerical strength, and during war ten per cent. are allowed for that purpose. Should more carriage be required during a march, covered hackeries (carts) are procured, on indent, on the nearest civil power.

Scale of the Barracks and description.

The barracks are similar low flat-roofed puckah buildings, though longer and wider than the hospital. Those for the Horse Artillery run in three parallel lines, (see plan) to the west of the hospital, while that for the company of Foot Artillery is to the east. The verandahs are closed in, one occupied by the married people, and subdivided by mats; the other contains the messes: they are hot, and deficient in not having an open verandah, for exercise. They are calculated to contain 76 beds in the interior, besides the verandahs and end rooms; they are 274 feet in length, 43 in breadth, and 13-4 in height; the verandahs are 8 feet broad.

The beds and floors are analogous to those in the hospital, the cook-rooms and necessaries are to the south of these respective barracks. The stables of the European troops are in six parallel lines to the north, those of the native troop to the north-east (see plan).

Wells.

There are three good puckah wells in the Horse Artillery, and two in the Foot Artillery,

and native lines; the well water of the station, like that of the Doab generally, is earthy, and brackish, except in a few old puckah wells, generally dug by the Mahrattas. The water is from 8 to 15 feet from the surface.

The situation of the barracks is very level, and much under water after heavy falls of rain; the drains are sufficient to carry off a moderate fall of rain, but not such as frequently falls, during the rainy season. Drains.

The parade is a level plain, a mile in breadth, and extending about four miles; to the westward in front of the Buff, Lancer, and native lines, it is bounded by the low sandy hills; it is low and marshy towards the east, terminating in a large pool, called the Dhobee's Tank. The Parade.

The Congee House is a low puckah building, situated to the north of the hospital; there are 16 cells, each 10 feet by 8. The food of the prisoners is one pound of bread per diem, with a jar of water, and a single quilt for furniture. When sick, they are removed to the hospital, and placed amongst the other patients; delirium tremens is often developed, after confinement, and rheumatism in the subacute form, called "the pains," sometimes afflicts the inmates. The Congee House.

The chief amusements of the men are long bowles, and fives; they have a very good The Soldiers' amusements.

library, and theatre, both great sources of agreeable occupation.

The following is a List of a Horse Artillery-man's Regimental Necessaries.

Regimental necessaries of a Horse Artillery man.

Blue Jacket,	1	
Leather Breeches,	1	
Warm Overalls,	1	
Cloak,	1	
Sash,	1	
Helmet,	1	
Long Boots,	1	pair
Spurs,	1	,,
Straps for Overalls,	1	,,
Leather Gloves,	1	,,
Jackets, white,	6	
Pantaloons, ditto,	6	
Shirts,	6	
Stockings,	6	pairs
Flannel Drawers,	2	,,
Flannel Banyans,	2	
Short Boots,	2	pairs
Stable Undress Cap,	1	
Stock,	1	

The white, warm weather clothing is worn from the 1st April to the 1st November; very few wear flannel belts, during the hot weather, though they would prove of the greatest advantage in preventing sudden changes of temperature, on the surface of the body. I have never traced any bad effects from wearing flannel next the skin, and it is always

recommended to those, who have suffered from severe abdominal disease. The spirits consumed in the Canteen are rum, and brandy, with wine and beer. Rum is the principal article in demand, the quality is good, and the price eight annas a bottle. The men are allowed to drink, in the Canteen, as much as they can pay for, so long as they are not drunk. This is allowing too much discretionary power, under unfavorable circumstances, to men not generally remarkable for abstinence, as a man may ruin his health by repeated or continued high excitement, though it do not proceed to intoxication. Within these last few years, beer brewed at this station by an enterprising individual, Mr. Bholee, has been much used. The draught beer costs two annas, and the bottled eight annas per quart. The former is most generally used; but it is apt to get sour in the hot weather, before the cask is exhausted. It is in general used by the steady men, and there are very few cases of delirium tremens amongst its consumers.

Canteen, and what liquors drank.

Beer brewed at the station, its price.

Bazar spirits are not much used, they are commonly so acrid, that only desperately vitiated palates, and men wavering between excitement and horror, (the precursors of delirium tremens), could swallow them. I believe it impossible to prevent their being smuggled occasionally into barracks, or even into the hospital, though it has the advantage of a high wall, with a sentinel at the gate, and a guard in the interior. It is concealed in

Country spirits not much consumed.

parcels, bladders, intestines, twisted round the body, and even in their boots. Improper food is sometimes conveyed to the patients, it is generally very easily detected, by the quantity, and nature of the evacuations, combined with some unfavorable change in the symptoms of the case. I punish the consumer, at the same time explaining the injustice to the medical treatment, the loss to the service, and the chance of ruining their constitutions, and losing the service without a pension, independent of the immediate prospect of a court martial. When once detected, they seldom repeat the offence.

Irregular supplies of food to the sick.

An Abstract of the Hospital Reports of the Meerutt Division of Artillery, from the 1st *January* 1833, *to the* 1st *June* 1837.

Abstract of Medical Reports from 1833 to 1837.

AVERAGE STRENGTH. EUROPEANS, ... 404. NATIVES, ... 1498.	EUROPEANS.		NATIVES.	
	Admd.	Died.	Admd.	Died.
Apoplexy,	9	5	1	0
Asthma,	0	0	3	1
Cutaneous Diseases,	2	0	0	0
Cholera,	15	3	4	1
Diarrhæa,	31	0	16	1
Dropsical Affections,	1	0	3	0
Dysentery,	102	3	12	1
Dislocations and Sprains,	12	0	4	0
Delirium Tremens,	68	4	0	0
Fractures,	19	0	15	0
Fevers, ... Remittent,	44	2	20	4
Fevers, ... Intermittent,	190	5	229	11
Gonorrhæa,	67	0	2	0
Hepatic Affections, Acute,	56	5	2	1
Hepatic Affections, Chronic,	9	2	0	0
Inflammations, External,	24	0	0	0
Inflammations, Cephalic,	1	0	0	0
Inflammations, Thoracic,	2	0	0	0
Inflammations, Abdominal,	1	0	0	0
Affections of Urinary Organs,	6	0	2	0
Mania,	1	0	0	0
Ophthalmic Affections, Acute	36	0	18	0
Ophthalmic Affections, Chronic,	1	0	1	0
Phthisis Pulmonalis,	19	5	3	1
Rheumatism,	51	1	34	3
Spleen,	3	0	0	0
Syphilis, ... Primary,	113	0	23	0
Syphilis, ... Secondary,	2	0	0	0
Small Pox,	15	1	9	0
Ulcers,	78	0	90	0
Wounds and Accidents,	281	3	298	1
Other Diseases,	298	4	62	1
	1557	43	851	26
Average Mortality to Sick,	2.76		3.05	
Do. to Strength per Annum,	2.42		0.40	

The following observations are intended to show the peculiarities in the treatment of the diseases, in this part of India. In hot damp stations, a similar mode of treatment would

Mode of treating the principal diseases.

not be equally successful. I joined this Division in November 1833, and since then, have several times been detached with Europeans marching in this part of the country, and absent in the hills on sick certificate. In consequence of the sickness of the Surgeon of the Brigade, the sick have been generally under my charge since October, previous to that period, I attended half the European, with the Native sick. The treatment recorded is what has generally been found most successful at this station. I have added the result of the cases, that came under my charge when detached, when the result tends to confirm any mode of treatment not generally employed.

Apoplexy.

Apoplexy.—This disease differs in no respect in its symptoms, or pathology, from the apoplexy of Europe. The cause is generally exposure to the direct rays of the sun—the sanguineous is most common.

The treatment is copious depletion, with strong mercurial, or croton purgatives, followed by local depletion, and counter-irritation, applying nux vomica to the blistered surface, and inducing mercurial action.

There have been nine cases amongst the Europeans, five of which have proved fatal, and one successful case in a native.

Cholera.

Cholera.—This disease shows all the characteristic symptoms, with all the varieties found in other parts of India. The attacks of

the Europeans are analogous to those, I saw in Paris in 1832, when it carried off upwards of a thousand a day.

I have not observed any change of structure in the vital organs, invariably present, and those most frequently found might have been influenced by the remedies. The blood is unnatural, but whether this arises, from the addition, or retention of noctious ingredients, or from a combination of both, or from loss of some essential part—or the cause of this change—I know not.

I have seen most modes of treatment, that have been suggested, tried unsuccessfully—and many experiments made, that never were published. Before the supervention of the collapsed stage, v. s., with large doses of calomel and opium, followed up by castor oil, blister to the epigastrium, with hot frictions of the extremities, is most successful, but occasionally totally ineffective. The disease occasionally yields, after the collapsed stage has commenced, whilst these remedies, or stimulants, or hot vapour baths are employed, but the only remedy, that I have invariably seen exert an influence on the disease has been a saline solution. In 1833 I first employed this remedy, in collapsed blue cases, by transfusing, through the veins in the arm, from three to five pints of a solution, containing one drachm of salt, and one scruple of carbonate of soda, to the pint of warm water, heat 110° F. In all reaction was induced, when various

Treatment of Cholera.

opposite modes of treatment were employed; in all purging returned with collapse, and death followed. It was given by the mouth, but it induced vomiting, and produced no benefit. This disease again came under my notice in 1834, when with a detachment of His Majesty's 11th Dragoons. The symptoms, and the treatment, and its effects were analogous to what I have mentioned. From considerng the decided, though temporary action of the saline solution, when transfused through the veins, together with its inefficacy when swallowed, I resolved to try it, in the form of enema, administered hot, and at short intervals. The following extract is from a report to Dr. Burk, Inspector General of Hospitals, in November 1834.

Saline Enemata.

"In Marshall's case (of Cholera), the usual treatment, viz. calomel and opium, was pursued but without success; at 6 p. m. six hours after admission, the pulse was not perceptible at the wrist, the skin cold, blue and clammy, the countenance collapsed, and the voice gone; I thought the case hopeless, but as I had in several cases, on a former occasion, found decided, though temporary, benefit in this stage of the disease from the transfusion of a *saline fluid* into the veins, I ordered the following to be administered, as an enema, every half hour.

℞ : Muriatis Sodœ ℥ss.
Carbonatis Sodœ ʒj.
Aqua Calidœ (120° F.) ℔j.

At 3 p. m. he was asleep; the pulse perceptible at the wrist. He had received two enemata. He got three more during night, at intervals, when he awoke. He had slept pretty well. The pulse was distinct, and the skin warm. The countenance more natural, and the voice partially restored. The enemata were repeated every hour till noon, when the countenance and voice were natural, the pulse distinct, and skin warm; some brown matter brought away with the enemata; mercurial purgatives were then employed, and bilious stools procured, and he gradually regained strength, under the use of bitter laxatives. The effect of the saline fluid, administered in this manner, is not so rapid, as when passed directly into the circulation. In these, the change to the florid appearance of health, and return of the pulse, with the cessation of the spasm, was simultaneous with the transfusion. The temperature of the water I consider of importance. The order, (in absence of a thermometer,) was, "to be given "as hot as could be borne, by the hand, without "inconvenience."

Since that period I have tried this remedy in several cases, both European and native, varying the strength of the solution, and the frequency of its repetition, according to the violence of the symptoms, and the effect of the remedy. I have only lost one patient since, from this disease, a native, in whom the pulse had disappeared from the

wrist. After two enemata, the pulse returned, and the vomiting and cramps ceased. I could not get a satisfactory account after this period. I believe the enemata, were omitted, and he sunk.

The following case shows the advanced stage of the disease, from which this remedy has produced a cure. The reaction under the use of the saline solution—the collapse returning on its being omitted, and reaction following its being resumed, clearly connect them, as cause and effect. It occurred on a march, from Cawnpore, with the 3rd Troop 1st Brigade Horse Artillery in 1835. April 16th, Lalloo syce, æt. 50, was seized with cholera at 10 a. m. I saw him at ½ p. 11, he complained of violent vomiting and purging of a congee fluid, with severe cramps of the extremities and abdomen. Pulse very quick and weak, countenance shrunk.

℞ ; Pulv. Opii. gr. ii.
Subm. Hydr. gr. x. m. ft. pulvis. stat: sumend, et meridie repetend—

1 p. m.—Has had several watery stools ; is collapsed, no pulse at wrist, or temples ; eyes glazed and fixed ; cannot speak, extremities cold.

℞ : Mur : Sodœ ℥j.
Carb : Sodœ ʒj.
Aq : Calidœ (120° F.) ℔j. solve, fiat enema, omni semihora injiciendum.

3 p. m.—Slight pulse at temples, a little warmth about the neck, speaks in a whisper, no vomiting nor cramps.

Cont : Enemata omni hora.

6 p. m.—Pulse perceptible, very quick at the wrist ; arms and head warm ; perspiring ; countenance more natural.

Cont. Enemata 2d[a] quaque hora.

9 p. m.—Pulse full and quick ; skin warm ; feels very comfortable ; voice more natural.

Cont. Enemata.

17th, 6 a. m.—The enemata were omitted, during the night, on the march. The extremities are now cold. Pulse very weak and quick, no return of vomiting, or cramps ; voice broken.

Rept. Enemata omni hora.

9 a. m.—Pulse quick and full ; voice more natural ; skin warm on the trunk and head.

Subm. Hydr. gr. v. st. sumend.
Ol : Ricini. ℥j. meridie.

6 p. m.—Several dark fæculent stools ; has slight headach. Pulse quick and hard ; skin hot.

Rept. Subm. Hydr.

He was slightly feverish for several days ; bitter laxatives completed the cure.

Dysentery.

Dysentery.—The symptoms of this disease are similar to those usually described, by writers on Tropical diseases, and to those which I described, in the Transactions of the Medical and Physical Society, vol. vi. p. 101. I am gratified in finding the opinion, I have advanced of this disease, being occasionally of an eruptive nature, supported by that of Mr. Twining, in the 2nd edition of his work on the diseases of Bengal, published, nearly a year, after that paper was discussed in the Society, of which he was Secretary; the probable connection between ulceration of the colon and hepatic abscess, 2d edition vol. i. p. 232, Note, will also be found in that paper, though he has forgot to mention these two circumstances. But, " de mortuis nil nisi bonum."

Causes of the disease.

The disease is most common, during the hot and rainy seasons. The general causes are, sleeping in a current of air, or behind a tattee—eating unripe fruit, or drinking cold water, when much heated, and exhausted—I have seen no cases here, that I could trace to contagion, though many of the cases, that occurred in the detachment of recruits proceeding from Calcutta to Cawnpore in 1833, evidently arose from that cause.

Treatment.

In the treatment of this disease, the chief reliance is placed on v. s. The patient is bled, from a large orifice, in the erect posture, to syncope, and this is repeated twelve hours afterwards, should there be no improvement

in the nature of the evacuations, and again under similar circumstances, after another interval of twelve hours. I have never required to order a fourth bleeding. Twelve hours after decided improvement has taken place, leeches are applied over the part of the colon most affected, and repeated at similar intervals, as long as any active inflammation is present—as indicated by the nature of the stools—tormina or tenesmus. The internal treatment consists of an ounce of castor oil, containing from five to twenty-five drops of laudanum, given on admission, with two of the following pills, every two or three hours, according to the urgency of the symptoms:

Treatment continued.

> R Pulv. Ipecacuanhœ
> Ext. colocynthidis Comp:
> Ext. gentianœ ā ā ℈ i. m.

Ft. massa, in pil. xii dividenda.

Diet in Dysentery.

The interval is increased, and the dose diminished, as the disease yields, and the stomach becomes irritable. In cases complicated with affections of the liver, one grain of calomel or blue pill is added to each pill, after the more acute symptoms subside. Bitter laxatives complete the cure. It is essentially necessary to the success of this mode of treatment—that no solid food, and only a very little liquid be taken, when active inflammation is present. During the first, and second days, merely a little tea is allowed—afterwards an ounce of sago, made with water, is given three

times a day—the diet is gradually increased, as convalescence advances.

Sequelæ of Dysentery & their treatment.

The above mode of treatment is generally sufficient for all cases, that have not been three days ill before admission. After this period, the effects of the inflammation have to be treated, after the inflammation is subdued by the above mentioned means, these are thickening, or more generally ulceration of the coats of the colon. In many cases, persisting in these means, for a longer period is sufficient, but when the ulcers become indolent, as indicated by frequent whitish mucous stools, with little tormina or tenesmus, and dull pain on pressure, with fulness over part of the colon—a blister is applied, and half a grain of sulphate of copper substituted for the Ipecacuan,—and the following powder given, every second night:

℞ Tart. Antimon. gr. j.
Subm. Hydr gr. v. m.

when the tenesmus is distressing, an enema of

Lot: Acetat: Plumbi ℥ ii.
Tinct: Opii ʒ ii.

given at bed time, gives relief. In one or two protracted cases, the following powder, every three hours, has been useful:

℞ Pulv: Opii. gr. $\frac{1}{2}$
Acetat: Plumbi gr. ii.

I have not seen any advantage, from giving free purgatives every morning, as

recommended by many authors. The castor oil with laudanum, after the bleeding, freely evacuates the bowels, no food is allowed, that could leave any existing fœculent matter, and the small quantity of colocynth in each pill removes the secretions. When the cœcum and iliocolic valve are affected, vomiting is very troublesome, in such cases, advantage is derived from the application of a blister, before the active depletion has ceased. When hepatic obstruction exists—mercurial action is excited;—I have only employed this last remedy in two cases.

Diarrhœa, when not colliquative or dependent on chronic enlargement of the liver or spleen, yields readily to analogous—though milder treatment.

Result of treatment.

There have been, amongst the Europeans, 31 cases of diarrhœa, and 102 of dysentery, of which three have proved fatal. I have had about fifty other cases unconnected with this Brigade, only one of which died—this termination was produced by cholera, the day after admission. Amongst the natives, there have been sixteen cases of diarrhœa, and twelve cases of dysentery, one of each of which proved fatal.

Delirium Tremens.

Delirium Tremens is a common disease, and though not attributable to any peculiarity in this branch, is still partly dependent on Military service. It appears after an excessive debauch, or suddenly ceasing the

Delirium Tremens.

habitual use of too much spirits—most Military offences are committed, when *under the influence of liquor*, the most frequent punishment is confinement to the guard or conjee house, where the food is bread and water, and where spirits are strictly prohibited; such are the circumstances under which this disease is to be anticipated, and such is the history of most of the cases. It is usually guarded off, in the barracks, by gradually discontinuing the stimulants, and such is indicated, as the prophylactic treatment—but as giving the usual stimulant would diminish the punishment, it ought to be combined with some bitter, as gentian or cheretta, and as constipation is a frequent concomitant, the addition of senna would be advantageous. I never saw a native labouring under delirium tremens.

Its treatment.

In the treatment of this disease, I have found depletion, and counter-irritation assist the action of the opiates, in a very marked degree—bleeding to fainting in the young and plethoric, or leeches to the nape of the neck in old broken-down subjects, with strong mercurial purgatives are employed on admission, with two drachms of laudanum or four grains of opium, every three hours, during the night. Next day, should sleep not have been induced, a scruple of calomel and one grain of tartar emetic is given in the morning, and two drachms of compound powder of jalap at noon, or an antimonial purgative, in small doses, during the day, repeating the opiate at night.

Should this not have induced sleep, the calomel is repeated next morning, with the jalap at noon, and a blister is applied to the nape of the neck, and the opiate repeated at night. There are few cases, in which sleep is not induced before next morning; then a few stimulant purgatives complete the cure. Should the third night pass restless and furious without sleep, four grains of calomel and one of opium are given, every three hours, during the day, and at night a caustic blister to the neck, with the strong opiates repeated. I have seen the patient sink into a sound sleep ten minutes after the application of this blister, before any additional opiate had been given. This mode of treatment is continued till sleep be induced, which takes place generally on the first, and very rarely later than the second day. The mouth is always found affected by the mercury, when the patients waken. Stimulant laxatives finish the cure—the mouth sometimes becomes very sore. Treatment continued.

The worst cases appear in broken-down confirmed old drunkards, who have not been many weeks discharged, till they return with aggravated symptoms. In these cases the stomach is very irritable, the pulse quick, weak and irregular, and the secretions very much deranged. In these cases a blister is applied to the epigastrum, the bowels freely opened by purgative enemata, and occasionally the opiates are given in enemata. The insensibility of the system to the action of opiates is In confirmed drunkards.

Treatment continued.

remarkable. One patient retained an ounce and a half of laudanum, (given in four enemata of three drachm doses, at intervals of three hours,) for some time, without producing any sensible effect—he afterwards recovered.

The irritability of stomach in many cases depends on the state of the brain; in some, from the tenderness or pain on pressure over the epigastrum, it is evidently connected with gastritis. In these, depletion, with purgative enemata, and effervescing draughts containing laudanum, and a blister to the epigastrium remove the irritability, and generally induce sleep. Cases, complicated with hypertrophy of the heart, are most violent, and complications with disease of the lungs most dangerous.

Result of treatment.

There have been sixty-eight cases admitted, of which four have proved fatal. Three of these confirmed old drunkards, one of whom had extensive cavernous ulceration in the lungs; another had the cortical part of both kidneys nearly all destroyed, combined with great enlargement of the liver; the other had the liver very much enlarged, with the cicatrices of several old abscesses. The fourth patient drowned himself, the day after admission. The case is subjoined, as very important, in showing the morbid appearances, in the first stage of this disease.

Case of Delirium Tremens.

Pat. O'Connor, æt. 29, Gunner, 1 Company 3d Battalion—convalescent from intermittent fever; on his way from Mhow to Landour, has

several times suffered from delirium tremens, during which he is reported to have been exceedingly violent; has been drinking hard for several days. He attempted to cut his throat at 3 p. m. and was brought to Hospital at 5 p. m. on the 2d March 1836—he is restless, has not slept for four nights—no pain, bowels costive, p. 76, T. clean, S. cool.

℞ Pulv: Ipecac. ℈i.
Tart: Antimon: gr. ii. ft. pulvis st: sumendus.

℞ Subm: Hydr: gr. x.
Ext: Colocynth: Comp: ℈i. ft. massa in pil. iv. divid: hora somni sumendas.

Pulv: Jalap: Comp: ʒ ii. cras mane.

3d, Bowels freely opened, was restless, did not sleep, is quiet, and says he is quite well; p. 76, T. clean, S. cool.

℞ Tinct: Sennæ ℥ i.
Infus: Cherettæ ℥ii. m. ft. haustus statim sumendus, et meridie repetendus—spoon diet.

Vespere. Continued well, and cheerful during the day;—at half-past five, slipt from his guard, jumped into the Hospital well, sunk immediately, and was dragged up, half an hour afterwards—dead.

Sectio Cadaveris, 14 hours after death. Autopsy. Body not emaciated—frothy fluid issuing from the mouth, and nostrils—the pendent parts of the body livid, the upper pale; limbs rigid; blood dark, liquid.

Autopsy continued.

Head—Venous congestion on the surface, and more bloody points, than natural, in the substance of the brain, which was of the usual firmness. Two ounces and a half of serous fluid, under the arachnoid, and in the lateral ventricles.

Thorax.—Lungs emphysematous ; did not collapse when the thorax was opened, frothy fluid in the bronchia, and through the lungs, which were heavier than natural—heart empty, with considerable hypertrophy of the left ventricle.

Abdomen.—Liver and spleen considerably enlarged, structure natural—there was a florid flush over the intestines; and they felt doughy; —stomach much distended with food and water—mucous coat very vascular, and much thickened. Gall bladder small, covered by a false membrane, and adhering to the colon, it contained a small quantity of light yellow bile.

Remarks.—The previous attacks had commenced in a similar manner. From the mildness of the symptoms, I tried to ward off the attack—opiates would have been given at night.

Fevers.

Fevers.—Continued fever is very rare—the few cases, that occur, appear in the hot season, and arise from exposure to the sun. The symptoms are headach, pain in the loins,

and limbs, with hot dry skin, and quick hard pulse.

The treatment is purely antiphlogistic, viz. v. s. leeches, antimonials, and purgatives.

Types of Fever.

There is no distinct line of demarcation between the intermittent and remittent fevers, the former occasionally assuming the latter type, and vice versa; and either, in their progress becoming continued. The most common form, during the cold and hot seasons, is an inflammatory quotidian, commencing with rigors, and followed by sweating. The rigors, as the disease advances, become less distinct, the sweating more partial, and the remission less perfect, whilst the hot stage becomes longer, and at last constant. It commences occasionally as a tertian, and passes through a similar course, becoming constant after the third or fourth paroxysm, delirium or symptoms of some organic lesion are then developed, if not previously evident. Headach, pain in the loins, and thirst are the symptoms most commonly complained of. The bowels are costive, with occasional nausea. Tongue furred, pulse quick, and hard. Skin dry, conveying a harsh, tingling, sensation to the touch. This dryness occasionally remains, after the other symptoms have disappeared, but while this is present, convalescence is not established.

Treatment.

The treatment is generally purely antiphlogistic. On admission the patient is bled

Treatment continued.

to fainting, and gets a purgative of calomel and jalap, with the following draught every three hours.

℞ Tart. Antimon : gr. j.
Infus : Sennœ. ℥ ij. m.

At night, if much local pain or hardness of pulse remain, v. s. is repeated, and the following powder given :

℞. Tart : Antimon : gr. j.
Subm : Hydr : gr. x. m.

but should there be much improvement, leeches are applied, instead of the v. s. and the antimonial mixture continued.

On the following morning, according to the progress of the symptoms v. s. or leeches are employed, and the antimonial mixture continued during the day, and leeches and the calomel powder at night, should the symptoms not be very much diminished; but in the great majority of cases, continuing the antimonial mixture is sufficient to remove all the symptoms. It is afterwards given at longer intervals, and the cure is completed by bitter laxatives.

Diet.

The diet is confined to sago, as long as dryness of the skin remains, then milk and bread allowed, and the diet gradually increased.

Occasionally the headach continues with quick pulse, dry skin, and restlessness or

delirium after the third night, then the local depletion is continued, with five grains of calomel every three hours, using a purgative, if the bowels be not freely opened, and at night repeating the leeches or applying a blister, and giving the accompanying powder; Treatment continued.

R Tart. Antimon. gr. ii.
Subm. Hydr. ℈j. m.

omitting the antimony, should the stomach be very irritable, the calomel is continued next day, till mercurial action be induced, when the symptoms generally yield, and laxatives finish the cure. Sulphate of quinine is found beneficial in accelerating convalescence; though it is generally pernicious, if given early, when dryness of the skin remains. When the fever assumes a distinct tertian type, the sulphate of quinine is an invaluable remedy, and rarely fails in producing a cure, after the bowels are freely opened, and the secretions become natural. It is found most efficacious, when given uncombined with other medicine, in divided doses, the intervals so calculated, that one dose shall be given, half an hour before the usual period of attack. Of Quinine in Fever.

In a few instances, generally towards the end of the rains, the disease assumes a typhoid remittent type, the chief characteristics of which are rapid prostration of strength, quick, weak pulse; partial, clammy sweats, and low muttering delirium. This rarely appears in the cold or hot seasons, when the abovementioned Of a typhoid type.

Treatment of Fever continued.

treatment is *early* had recourse to. When the disease assumes this form, calomel and tartarate of antimony are given during the exacerbation, and sulphate of quinine, when a distinct remission is procured—counter-irritation is employed, and the bowels kept freely open. In cases, where immediate danger was anticipated, calomel combined with quinine was given, during the partial remission, if the head were cool—even though there were headach, and delirium, during the exacerbation. It appears, in these cases, to render the system susceptible of mercurial influence, —and when plyatism is excited, recovery ensues. I have given the quinine successfully under these circumstances, when from the dull headach, dilated pupil, and giddiness on assuming the erect posture, I inferred that effusion had taken place on the brain. It is a powerful, active remedy, even when scruple doses of calomel appear inert—and its effects must be closely watched. I persist in its use, even though it increase the headach—if the pulse become slower, and the head remain cool. When the pulse becomes strong, and the head hot, the quinine is omitted, and the calomel continued with purgatives, according to the state of the bowels ; it is resumed, on the remission re-appearing—and Ptyalism may then be anticipated. When there was great prostration of strength, with coldness of the extremities, a favorable result has been assisted by a combination of quinine, port wine and cheretta—quinine is of great use

in the convalescence of these cases—and a change of air is generally necessary to re-establish health. In cases of this description, the closest attention is necessary to the developement of old, or the supervention of new symptoms—these may require local depletion —whilst general stimulant treatment is pursued—the local complications will generally indicate the treatment, during convalescence.

The use of very large quantities of mercury occasionally produces no constitutional effect, till some days, or even weeks, after it has been discontinued, and convalescence has been established, then the gums become swollen, and shrink from the darkened teeth. Excessive salivation, with ulceration of the gums, tongue and cheeks, occasionally supervenes towards the end of the rainy season. This accident is generally connected with enlargement of the spleen; but I have seen severe salivation, when it was not apparently enlarged, from a few grains of calomel—in one case, nineteen grains, and in another sixteen grains of blue pill. Sulphur in repeated full doses was given in these cases, and in none did sloughing of the cheek nor necrosis of the jaw ensue; though I had two patients during the season, under my charge, to whom these accidents happened. Effects of Mercury in Spleen.

There have been two hundred and thirty-four European cases of fever, of which seven have proved fatal; and two hundred and forty-nine native admissions, of which fifteen have died. Result of treatment.

Remittent fever among the natives of a virulent and contagious type.

Since the commencement of the last cold season, the natives have suffered from a very dangerous remittent fever, with yellowness of the skin, and conjunctiva; they seldom complained of local pains. The most prominent symptoms, at the commencement, were suffused eyes, slight headach, and great prostration of strength, with early delirium during the hot stage; the remissions at first well marked, became indistinct after the second day, and yellowness of the conjunctiva, great prostration of strength, sordes on the teeth, quick feeble pulse, low muttering delirium, and coldness of the extremities followed.

The emaciated, ghastly appearance of the patients on admission, after the third or fourth day of the attack, made me doubt their history of the disease, till it received confirmation from several cases that occurred, amongst the attendants and patients in the hospital. It was evidently contagious; one man attending on his friend caught the disease, and lay four days comatose—his brother caught it while attending on him and died—so that, it evidently was not rendered milder by transmission.

Treatment of this Fever.

The treatment was leeches to the nape of the neck, a mercurial purgative followed by an antimonial solution—sulphate of quinine was given, when a distinct remission was obtained; they were generally admitted after the second day, and had delirium on the first accession of the hot stage—and after the second accession they remained dull, rather comatose, with yellowness of the conjunctiva, and sordes

on the teeth. They then sunk into a state of low muttering delirium, with coldness of the extremities; blisters were applied to the nape of the neck, and quinine given alone, when the remission was perfect, and combined with calomel when imperfect. In several cases where the collapse was great, powdered capsicum and quinine were given, till re-action took place. The treatment was then regulated by the symptoms, that appeared. The bowels were kept open by enemata or mild laxatives. Free evacuation was avoided, as it induced very great prostration of strength. I attributed the death of one patient, who was beginning to rally from this advanced stage, to the moderate action of an ounce of castor oil. Hickup was a troublesome symptom in some of the cases, that used the capsicum; it was relieved by effervescing draughts, and assafœtida with a blister to the epigastrum. The gums were affected, but free plyatism was not induced in any case. An inordinate flow of urine was the first favorable symptom, in many of the cases. The convalescence was tedious. A change of air merely to the lines was found very beneficial, in the convalescence of some cases—the following case shows clearly the early morbid appearances. In all that died there was serous effusion, in the brain. Treatment continued.

Lalloo Syce 1st Troop, has been ill with fever for five days, is now delirious, with great Case of yellow remittent fever.

tenderness in both hypochondria, conjunctiva yellow, pulse quick, skin hot.

App: Hirud: xviii. epigastrio.
℞ Tart: Antimon: gr. i.
Subm: Hydr: gr. iii. m. ft. pulv: tertia quaque hora. repetendus.

He died on the accession of the hot stage, thirteen hours after admission.

Sect: cadaveris.—There was a copious, red, serous effusion under the arachnoid, and at the base of the brain. The pia mater vascular, with numerous bloody points in the substance of the brain. The thoracic viscera were healthy, the blood dark and liquid; the liver was enlarged, dark, and friable; the spleen much enlarged. There were no other marked morbid appearances.

This disease has become much milder, and more tractable, since the hot season commenced.

Hepatitis. *Hepatitis* is a very common, and dangerous disease; independent of the usual influence of the climate, the disease is connected with the very hot state of the barracks, and in some instances, with injuries received on duty. It appears most frequently after the rains; but it is found at all seasons. During the practice season in the cold weather, it has the strongest tendency to terminate in abscess; pain in the right hypochondrum, increased

by pressure or full inspiration, and uneasiness in the right shoulder are the usual characteristic symptoms. The pulse is quick and hard, but the skin is rarely hot and dry. The sounds elicited by percussion are of the greatest importance in ascertaining the size of the liver, and in assisting in the diagnosis between inflammation of the surface, and that of its structure, and in the progress of some hepatic abscesses. Symptoms of Hepatitis.

In the treatment, the chief reliance is placed in v. s. carried to syncope on admission, and repeated at intervals of twelve hours, till the acute symptoms yield. It is rare to repeat it more than three times, but in one case it was repeated four times to syncope, or till the blood ceased to flow. This, in dangerous cases, I consider the only true criterion of the quantity, as indicated by the constitution, requisite to subdue the inflammation, and v. s. to syncope is invariably my order, when a vital organ is acutely inflamed. The effect of a bleeding to 50 or 60 ounces is most satisfactory, in subduing alarmingly dangerous symptoms, and I never saw any unfavourable consequences result. The largest quantity, that I ever abstracted at one bleeding, was on admission from a plethoric young man, with acute hepatic symptoms, where the liver extended three inches, beyond the ribs, in the epigastrium. Seventy-two ounces were abstracted before fainting was induced—next day the liver was reduced two inches, and he was convalescent in ten, and he might have Treatment of Hepatitis.

Effects of Venesection.

been discharged, in a few days, had he not got an acute attack of rheumatism in the wrists and ankles, from lying in the current of a tattee ; these symptoms yielded readily, he was discharged on the 28th day. I bled an old Major in 1835, who had acute symptoms of determination of blood to the head, to 64 ounces before syncope was induced, since then he has enjoyed better health, than for years previously. In general the total quantity of blood abstracted is less, the acute symptoms yield more readily, and the convalescence is more rapid in dangerous cases, when the first bleeding exceeds forty ounces, than when it is under that quantity. In those cases where fainting was induced, before six or eight ounces are abstracted, no benefit was derived from the operation, and instead of being repeated a large number of leeches were applied with advantage.

Whilst acute inflammation is present, nausea is kept up, during the day, by frequent doses of antimonial purgatives, and at night a scruple of calomel and one grain of tartrate of antimony are exhibited with a purgative in the morning, should the bowels not be freely opened. When the active inflammation is subdued, leeches are applied to the side, and two of the following pills given three times a day, till ptyalism be excited, tenderness of the gums is not enough.

R Subm : Hydr :
Pil : Hydr :
Ext : Colocynth : Comp : ā ā ℈ i m.
ft. mass : in pil. xii divid : sumat. ii. ter. indies.

Ptyalism has generally commenced by the fourth or fifth day, after which, there is seldom much uneasiness in the side. The gums are kept tender, for a period proportioned to the previous obstinacy of the symptom; the bowels are then kept open by simple laxatives, with an occasional dose of blue pill. After-treatment.

During the active treatment, merely a little tea in small quantities is allowed, and until the gums are getting well, only an ounce of sago three times a day. After this milk and bread are allowed, and the diet slowly increased. Diet in Hepatitis.

Blisters are seldom applied with advantage, except there be obstinate pain depending on inflammation, extending to the surface.

In the diagnosis of hepatic abscess, much confidence cannot be placed in any single symptom, nor often in any combination of symptoms, during the examination of one day, or even occasionally of several days. All appreciable symptoms are sometimes for days totally wanting, and frequently merely such slight symptoms are present, as are generally found in cases, that do not terminate in abscess. Abscess is more frequently formed, and reabsorbed, or evacuated, than is generally supposed. In some cases, the pus remains encysted for several years. This opinion is formed, from an examination of the previous history, compared with the post mortem appearance of patients frequently in hospital, Diagnosis.

Diagnosis continued.

with symptoms analogous to those, which proved fatal, and from the appearance of cicatrices on the liver. This advantage of tracing the symptoms connected with morbid appearances of old standing, can seldom be found except in regimental practice. Protracted convalescence with quick pulse, and the occurrence of uneasiness or pain on slight irregularities of diet, or the exhibition of improper medicine, form the foundation of my diagnosis. As the ábscess increases, many auxiliary symptoms appear, depending on its situation. Whilst still in the centre of the liver, diarrhœa, and increased size are generally found, with difficulty of exciting ptyalism. If to these be added the supervention of dry cough, with increase of pain on turning on the left side—or pain in the stomach, with vomiting—or acute or dragging pain on flatus or fæces passing the arch of the colon—the diagnosis of hepatic abscess is pretty clear.

Probable case of abscess of the Liver.

It is frequently fatal without bursting, and always so, when bursting into the peritoneum —one case that was in hospital, last cold season, may be an exception. This case, J. Grogan, Gunner 2d Company 2d Battalion, had long protracted convalescence from fever, with enlargement of the liver, followed by fixed acute pain in the epigastrum, and vomiting, these were his symptoms, on his re-admission, under my charge, on the 28th November 1836—that night, when vomiting, he felt something give way—this was followed by

burning pain in the epigastrum, spreading over the abdomen, tormenting thirst, great oppression of breathing, pulse 144, vomiting constant, he got frequent doses of opium, combined on the 30th with calomel, and he rallied; but as his bowels were costive, he got a purgative, on the 1st December, which produced several very dark, watery stools, but caused a return of the pain in the abdomen, and the vomiting—on the 2d the oppression of breathing was very great, countenance sunk, skin cold, clammy, pulse 142—he got a glass of port wine, every two hours, till he rallied—and the bowels were kept open, by enemata till the 8th—he was discharged well, on the 4th January 1837.

The constant motion, and irritation from coughing, generally causes a fatal termination, when the abscess bursts through the lungs. In one case, that proved fatal in February last, the abscess in the liver had healed, but a large one had formed, between the communication with the bronchia and the diaphragm, which caused death.

Terminations of abscess of the Liver.

Bursting into the colon is most favorable; in one case the puriform discharge ceased, twenty days after the abscess burst, and he convalesced rapidly—I have suspected evacuation in this manner, in several cases, but the diagnosis was not without doubt.

An early operation, for the evacuation of the abscess, would be beneficial in many cases,

Of puncturing abscesses of the Liver.

as it is not very painful, and if carefully performed, not likely to increase the danger of the case.

Treatment of hepatic abscess continued.

The decision of the question, whether an abscess can, or cannot be re-absorbed, is very important in a practical point of view, as one of two opposite modes of treatment must then be selected, either to give tonics to make the abscess point, and to support the strength, so that when it bursts, the discharge may not exhaust the weakened constitution—or to continue efforts, for its re-absorption, which are of an antiphlogistic nature. I adopt the latter, till the abscess is pointing, then support nature, and alleviate distressing symptoms, till it burst, and afterwards give tonic medicines, and more generous diet, with a little blue pill occasionally, the constant motion during a march is very unfavorable to cases of hepatic abscess.

Of Hepatitis in Natives.

There have been two cases of hepatitis amongst the natives of the Brigade, and I have now a third case under treatment; the first was caused by a blow, abscess followed, and he died. From the appearance of cicatrices radiating from the abscess, the liver must have been extensively lacerated by the injury. In the other two cases, the symptoms were very analogous to those in Europeans, and they yielded—though very slowly, to local depletion, and mercurial action. They were of some days standing, and had used inert remedies previous to admission.

Small Pox has been very prevalent during the last cold season ; it has appeared under all the circumstances, that are supposed to guard against its attacks, viz. in those who have had the disease naturally, and from inoculation, in those who had been vaccinated, and in those who had resisted vaccination, some weeks previously, and in one child under two months of age. Many had neither been vaccinated, nor inoculated. The eruptive-fever was slight in some, and not much modified in others, who had been vaccinated or inoculated—in these the eruption was generally scanty, though in two cases it was confluent on the face : several cases in one family, and many isolated cases occurred, there was nothing peculiar in the treatment.

Of Variola.

Attacks the vaccinated and inoculated.

There were thirteen cases amongst the Europeans, one of which proved fatal, and ten amongst the natives, all of which recovered.

Venereal.—There are a great number of cases of these diseases, which may in part be attributed to the want of a lock hospital ; the prostitutes are carefully examined once a week, and tickets given to the healthy ; but as the sick are treated as out patients, they may, and frequently do disseminate their diseases.

Venereal affections.

Gonorrhœa is treated by antimonial laxatives, with leeches to the perineum, and spoon diet, till the active inflammation is subdued ;

Gonorrhœa.

then cubebs given, or sulphate of zinc injections used, with more generous diet. There have been sixty-seven European, and two native cases.

Ulcers and their treatment.

Ulcers are very common; they are generally inflamed on admission, and treated antiphlogistically with antimonial laxatives, and spoon diet. In a few cases v. s.; and in many, when there were buboes, leeches were employed, and when the sores became indolent, mercury was given to affect the system; this was seldom requisite. The local treatment depended on the appearance of the sores, at first poultices, then black wash, and occasionally calomel in powder.

There have been one hundred and thirteen European, and twenty-three native cases, and two cases of secondary symptoms. In patients who had the primary disease, before arriving at Meerutt, I believe several of these sores were induced, by the intentional application of irritants, they have become less frequent, since several suspicious cases were treated with an antimonial-assafœtida mixture; these are the only cases, that I have suspected of being simulated.

Injuries in the European and native constitutions.

An excellent opportunity is afforded, in the Horse Artillery, of contrasting the local and constitutional effects of injuries, in the Europeans, and natives. There are about four hundred of the former, and fifteen hundred

of the latter, under medical charge, and similar accidents are frequently admitted at the same time, in young robust men apparently under similar circumstances, in every respect. In natives the pain, swelling, and redness are less marked, and the constitutional disturbance very frequently imperceptible, always much less developed, than in Europeans; in whom similar inflammation produces high symptomatic fever. Bruised injuries, such as bites very readily proceed to sphacelation in natives, and the loss of substance is slowly repaired: the sores are very apt to become indolent. From the slight constitutional disturbance induced, natives recover from much greater disorganization, or extensive wounds than Europeans. This may in part be accounted for, independently of the sympathetic affection, either alone proving fatal or producing great prostration of strength, by the consequent inflammation not being so great, and therefore not producing such extensive additional local disorganization. On this account, on natives, surgical operations are performed with comparatively little danger, and some may be performed, that are considered too dangerous to be attempted on Europeans.

Contrast between the European and native constitution.

Facility with which natives recover from wounds.

The effect of remedies is analogous in both; but most powerful in natives, particularly that of purgatives and emetics, when free action causes a proportionately great prostration of strength. Great attention must be paid to this, in the advanced stages of severe fevers. The

The effect of remedies.

energy of the treatment required for natives bears a similar proportion to that required for the French, which the treatment required for the French does to that required for the English. The following cases may serve to illustrate what has been here advanced :

Case of stricture with extravasation of urine.

A syce was admitted on the 8th June 1834, with extravasation of urine, from stricture of the urethra causing hard, inelastic swelling of the scrotum and pubes, round the root of the penis ; the parts were cool, and not very painful, p. 80. T. clean and S. cool. A flexible catheter without the stilette was passed into the bladder, and retained—twenty leeches were applied, and a purgative given.

9th. Parts more tender—no fever. Twelve leeches were applied, with fomentations.

10th. A small opening formed at the left side of the scrotum, through which a large quantity of pus and urine escaped. There was crepitus over the pubes, at the right side of the root of the penis. A free incision allowed the escape of a quantity of air and pus.

A catheter was retained in the bladder till the 24th, no urine escaped by the wound after the 16th. A catheter was occasionally passed for some days, and he was discharged well, in the beginning of July. In 1835 he was admitted with an ulcer on his leg, he had never

suffered any inconvenience in passing his urine since his discharge.

Cases of severe lacerated injuries in natives.

Another syce in 1835 had the penis pulled out from the root of the bulb and ascending rami of the ischium, by a horse—and another in 1837, had the left side of the scrotum, and the left testicle torn away, also by a horse—and in neither, was there any constitutional disturbance.

Case of stricture with extravasation of urine in an European.

A. B. æt. 35, Gunner H. A. admitted on the 10th June 1834, complaining of a painful dark swelling, about the size of half a hen's egg, situated at the root of the penis. It appeared last night, after he felt something *give way* in coitu—he passes his urine freely, general health good—leeches were applied, with cold lotions and a purgative given. It remained rather painful till the 15th, when after some difficulty in passing his urine, it became extravasated round the tumor, which enlarged and became very painful with fever, p. 96 sharp, T. white S. hot—twenty leeches were applied, and antimonials given ; they were repeated next day, as no improvement had taken place on the 17th, the swelling was freely laid open, urine escaped from the wound for several weeks, and he remained long very weak ; he was discharged well on the 13th September. During a march to Agra in October, difficulty in passing his urine returned, followed by the wound re-opening, and he again came under my charge in June 1835, with the urethra at

the anterior part of the wound completely closed, I was attempting to re-open the passage by caustic, when sickness obliged me to go to the hills. A syce was admitted on the 8th June 1835, complaining of having received a kick from a horse on the right knee, the wound was an inch and a half long, communicating through a longitudinal fracture of the patella, with the inner joint. A quantity of blood and air was pressed out of the joint, there was not much pain, but he was bled as a precautionary measure, the edges of the wound were brought together by adhesive straps, and the muriate of ammonia lotion applied, the leg was put on an inclined plane; there was slight pain in the liver, for several days, for which leeches were applied, but no constitutional disturbance. The Patella apparently united, and he was discharged quite well, on the 10th August.

Case of severe injury of the knee joint in a native.

Natives dislike entering Hospital.

Natives generally have an aversion to entering Hospital. Those not obliged to attend regular regimental duty seldom apply for advice, till their diseases are far advanced. Many natives unconnected with the Brigade apply for assistance, under similar circumstances, when their Hakeems have failed to cure them; they do not like vaccination; here small pox is a common disease. A few scrophulous and calculous cases occasionally appear; I have removed four calculi, three of them with success, and one fatal from hœmorrhage, when straining at stool, three weeks

Struma and Calculus.

after the operation: this happened during the rains, he had suffered from remittent fever before, and it returned some days after the operation. Leprosy is a common disease amongst the poorer classes. The Mudar (asclepias gigantea) appears to arrest its progress, and heal the sores, but the cure is merely temporary. It commences like the Paraplegia Adultorum of Earle, with loss of sensation, and motion of the extremities. In most cases irritating the ulnar nerve at the elbow, causes a painful tingling to the end of the fingers, as in cases where the Paraplegia depends on an affection of the medulla spinalis. Under this impression, I have applied blisters to the nape of the neck and apparently with advantage; but as the patients were not connected with the Brigade, I could not trace their future history. Leprosy.

Dracunculus is not an indigenous disease; but I have seen it, in native merchants, who travel much; one worm moved, for several seconds, after it was extracted. Dracunculus.

Cataract is very common; I have couched here, and in the hills, almost fifty eyes, most with success. I saw a number of cases of deafness, in the hills, caused by cerum accumulated in the meatus externus. Most were cured by its removal; one boy, about 12 years of age, had been deaf and dumb from birth. I removed a plug of dark, hard wax from each ear, and he heard with the right. The Deafness not uncommon in the hills.

slight constitutional disturbance excited by extensive disease, on the surface of the body, in natives must be born in mind, when a similar extent of constitutional disturbance is excited by internal disease.

On the effects of change of climate from the plains to the hills.

As I have had an opportunity of observing the effects of change of climate to the hills, on the officers and men of this Brigade, and as I twice went to the hills on sick certificate, where I attended many of the sick, I may be allowed to offer a few observations on that subject. During the cold season the climate is very cold and invigorating, and during the hot season cool, pleasant and healthy; during these two seasons it is equal, if not superior to any European climate for most of the diseases of this country. During the rainy season, it is damp, chilly and unhealthy. Most of the recent serious cases remain stationary or fall off during this season, whilst many old Remittent, Rheumatic, or Dyspeptic cases have relapses. Though unhealthy, in comparison with the other seasons in the hills, or with a European climate, still it is much superior for all remittent, and dysenteric cases, to the hot damp climate of the plains, during that season.

Principally beneficial in recent cases.

The greatest advantage is derived in debility, arising from acute attacks, in men lately arrived in the country. A residence during the hot and rainy seasons, generally restores them to their original vigour, which

is confirmed, by the next cold season in the plains. But in extensive organic disease of long standing, and in dangerous attacks of old residents, the above period is insufficient to produce a permanent renovation, in the weakened constitution. In many of these, cases the bracing cold season has been of the utmost advantage.

Inferior to the climate of some parts of Europe.

Including the whole season, the climate of Landour or Simlah is superior, in no case of disease, to that of various parts of Europe, and it is inferior, in several of the common diseases of this country. The high elevation, and the great power of the direct rays of the sun render it inferior, in some pulmonary, and cerebral diseases, and the periodical rains in rheumatism, and extensive, long standing, organic disease, induced by remittent fever; dyspeptic patients, particularly old residents in India, suffer much from torpor of the abdominal viscera, during this period.

Climate of Kunawur.

The periodical rains, the only unfavorable season, in the hills, for Indian diseases, may be avoided by crossing the snowy range to Kinour, where, by residing during the rainy season, at Soognum or Naiko, (villages 23 and 25 marches from Simlah,) a climate may be enjoyed drier, and cooler, than an English summer; so little rain or moisture falls that the soil is incapable of supporting vegetation. The country is formed of a succession of steep, brown, barren stony mountains, without a

Climate of Kunawur continued.

tree, and with scarcely a trace of vegetation, except along the channels of the torrents formed by melting snow, on comparatively level ledges; near these the inhabitants, by hard, and incessant toil, form level beds, which by irrigation afford a scanty subsistence. This *dry*, cool climate is more favorable to some of the Indian diseases, than any trans-marine climate, with which I am acquainted. This opinion is founded on the decided benefit derived here, in many diseases, during the hot winds. It is, as has been already mentioned, *dry* as well as cool, and on this depends its beneficial effects, as heat combined with *moisture*, in this country, as in all other tropical climates is unhealthy.

At Naiko the beneficial effects of the dryness are not diminished, by the debility induced by great heat, neither are they counteracted by a hot damp season following, as in the plains. This opinion is supported, by the inhabitants not being subject to those diseases peculiar to such climates; and in part confirmed by the result of my own, and a few other cases, that have tried it. I would not recommend the invalid remaining there, during the winter, as the country is much under snow, and the necessaries of life are expensive, and procured with difficulty. He should leave Simlah, in the beginning of June, and return in the beginning of October.

NOTE

ON THE FOREGOING REPORT

BY

Mr. SUPERINTENDING SURGEON PLAYFAIR.

The remarks of Dr. Murray, are correct to a certain extent, as they concern the climate of the hills; in some points however I am scarcely prepared to concur with him.

On the Climate of the Sanitary Stations at Simlah and Mussooree.

He says, that during the rainy season, it is "damp and unhealthy," and also "chilly." The climate is damp, so is almost every place during this season, but chilly, it is not, the temperature is too high, too mild, much too equable, to produce chilliness. It is not "unhealthy." It does not affect the sound, and only in a very few instances the diseased. As a proof of this, the sick list does not increase, on the contrary, the amendment continues progressive throughout that season. The equability of the temperature, although combined with moisture, is favorable to pulmonic, and even more favorable for rheumatic cases, than the variable and changeable climate of Britain. It is decidedly more favorable in strumous affections, than that of Europe, and more so, in such pulmonic affections, as incipient phthisis,

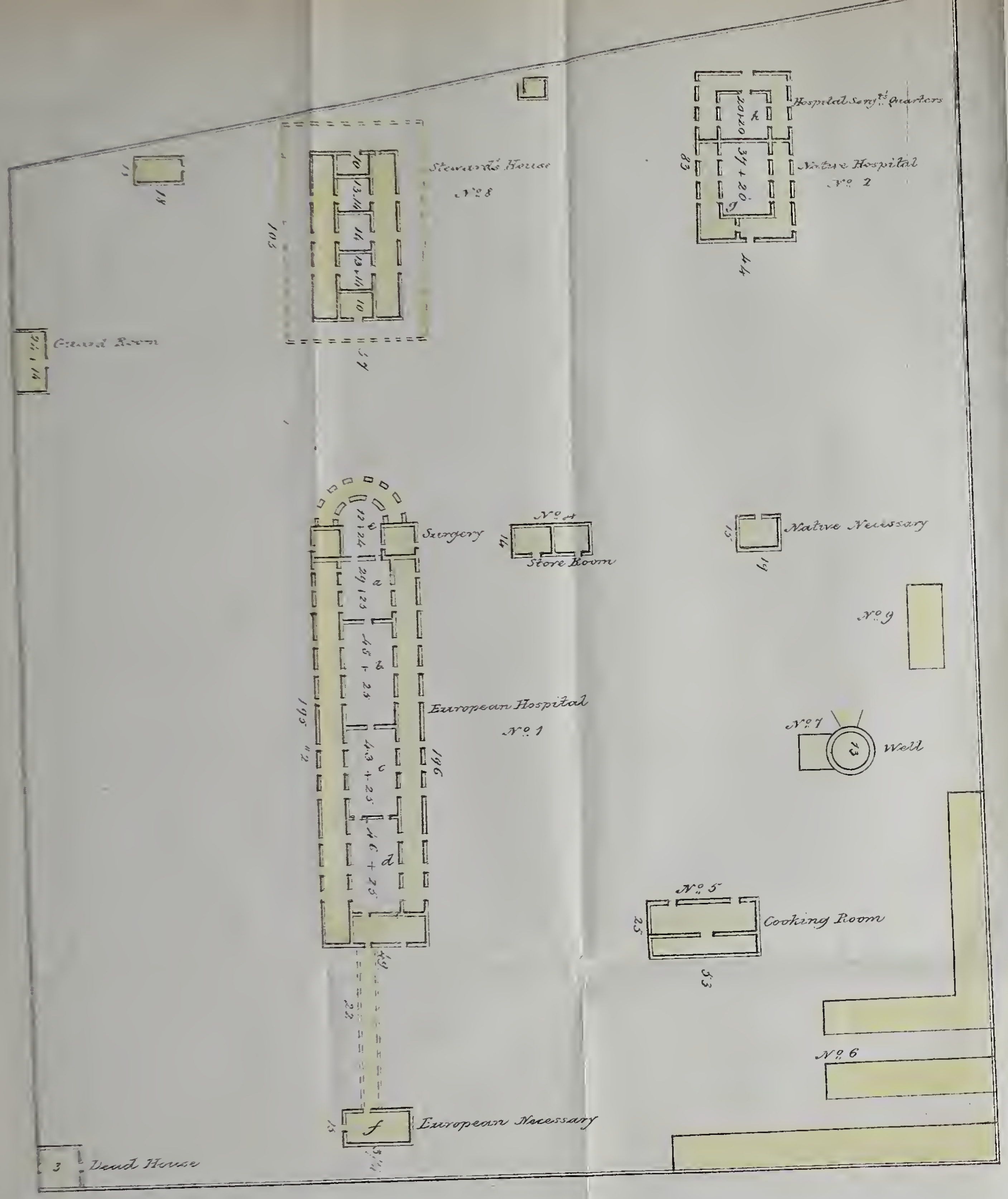
Climate of the Sanitary hill Stations continued.

and asthma. During the first year's residence in the mountains, those who have suffered from severe intermittent fever, with enlarged liver and spleen, have generally, at the commencement of the Rains, a few febrile paroxysms, which however yield without difficulty, and it is not found, in their second season, that the same cause produces the same effect. Patients similarly situated, on their landing in England, suffer in the same manner, on their first exposure to damp and moisture, and the climate of the Hills is greatly superior to that of Europe, inasmuch, as most obstinate diseases contracted in Arracan, and elsewhere, have not resisted the influence of two seasons; whereas the Soldiers from the Walcheren expedition, even in the climate of Britain, hardly ever recovered, so far as to escape an attack of intermittent, if exposed to cold and moisture. Almost every case of intermittent fever in the Edinburgh Infirmary used to commence with these words. "An old Soldier; was in the unfortunate expedition to Walcheren; has ever since on exposure to damp and moisture been subject to attacks of ague;" this too, in men, who had resided in Britain, ever since that expedition! I naturally come to the conclusion, that the climate in the Himalyah mountains cannot be considered as unhealthy in the rainy season, although it may not be deemed equally sanitary, as at other seasons of the year. It would be well worth the trouble to ascertain, in the comparative result of practice in an hospital in Britain, (Chat-

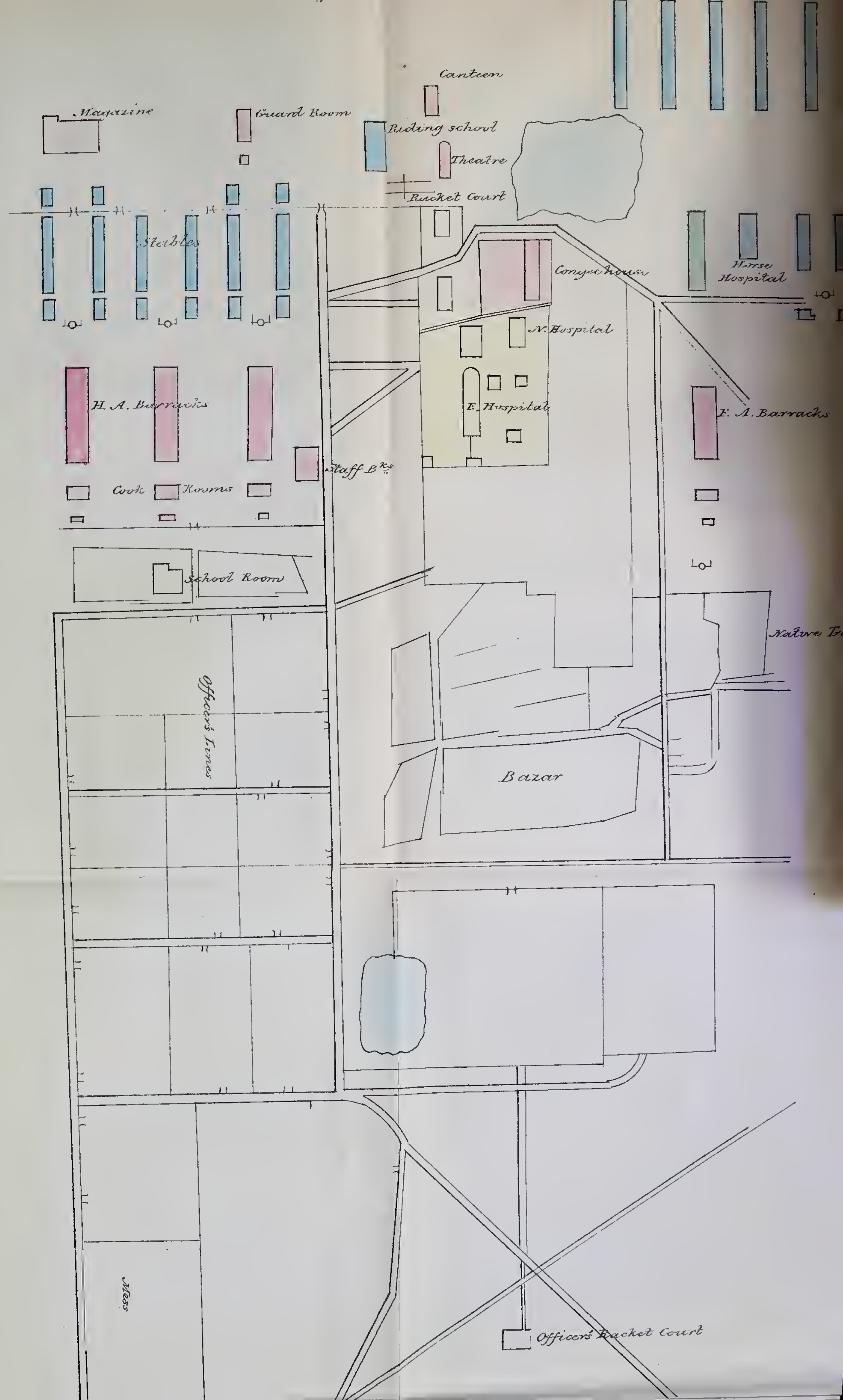
ham for example), where men are received for diseases contracted in the West Indies, and I may be allowed to express my doubts, whether it would prove equally favorable even with the advantage, which the patients in the latter have of a previous sea voyage. The above remarks are confirmed by the experience of one of the most zealous members of the profession, and whose experience has been most extensive. I allude to Dr. Robertson, who has had medical charge of the Sanitarium, for a number of years.

FINIS.

G. H. Huttmann, Bengal Military Orphan Press.



Artillery Hospital



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